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WHAT IS CLAIMED IS:

1. A method of targeting a compound to a cell over-expressing a matrix metalloproteinase, a plasminogen activator, or a plasminogen activator receptor, the method comprising the steps of:

(1) administering to the cell a mutant protective antigen protein comprising a matrix metalloproteinase or a plasminogen activator-recognized cleavage site in place of the native protective antigen furin-recognized cleavage site, wherein the mutant protective antigen is cleaved by a matrix metalloproteinase or a plasminogen activator; and

(ii) administering to the cell a compound comprising a lethal factor polypeptide comprising a protective antigen binding site; wherein the lethal factor polypeptide binds to cleaved protective antigen and is translocated into the cell, thereby delivering the compound to the cell.

- 1 2. The method of claim 1, wherein the cell overexpresses a matrix 2 metalloproteinase.
- 1 3. The method of claim 2, wherein the matrix metalloproteinase is 2 selected from the group consisting of MMP-2 (gelatinase A), MMP-9 (gelatinase B) and 3 membrane-type1 MMP (MT1-MMP).
- 1 4. The method of claim 1, wherein the cell overexpresses a plasminogen 2 activator receptor.
- 5. The method of claim 4, wherein the plasminogen activator is selected from the group consisting of t-PA and u-PA.
- 1 6. The method of claim 1, wherein the matrix metalloproteinase-2 recognized cleavage site is selected from the group consisting of GPLGMLSQ (SEQ ID 3 NO:2) and GPLGLWAQ (SEQ ID NO:3).
- 7. The method of claim 1, wherein the plasminogen activator-recognized cleavage site is selected from the group consisting of PCPGRVVGG (SEQ ID NO:4),

 PGSGRSA (SEQ ID NO:5), PGSGKSA (SEQ ID NO:6), and PQRGRSA (SEQ ID NO:7).
 - 8. The method of claim 1, wherein the cell is a cancer cell.

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1	9. The method of claim 8, wherein the cancer is selected from the
2	group consisting of lung cancer, breast cancer, bladder cancer, thyroid cancer, liver
3	cancer, lung cancer, pleural cancer, pancreatic cancer, ovarian cancer, cervical cancer,
4	colon cancer, fibrosarcoma, neuroblastoma, glioma, melanoma, monocytic leukemia, an
5	myelogenous leukemia.
1	10. The method of claim 1, wherein the cell is an inflammatory cell.
1	11. The method of claim 1, wherein the lethal factor polypeptide is
2	native lethal factor.
1	12. The method of claim 1, wherein the compound is native lethal
2	factor.
1	13. The method of claim 1, wherein the lethal factor polypeptide is
2	linked to a heterologous compound.
1	14. The method of claim 13, wherein the compound is shiga toxin, A
2	chain of diphtheria toxin, or <i>Pseudomonas</i> exotoxin A.
1	15. The method of claim 13, wherein the compound is a detectable
2	moiety.
1	16. The method of claim 13, wherein the compound is a nucleic acid.
1	17. The method of claim 13, wherein the compound is covalently
2	linked to lethal factor via a chemical bond.
1	18. The method of claim 13, wherein the heterologous compound is
2	recombinantly linked to lethal factor.
1	19. The method of claim 1, wherein the compound is a diagnostic or
2	therapeutic agent.
1	20. The method of claim 1, wherein the cell is a human cell.
1	21. The method of claim 1, wherein the mutant protective antigen
2	protein is a fusion protein comprising a heterologous receptor binding domain.



- 22. The method of claim 21, wherein the heterologous receptor binding domain is selected from the group consisting of a single chain antibody and a growth factor.
- 1 23. An isolated mutant protective antigen protein comprising a matrix 2 metalloproteinase or a plasminogen activator-recognized cleavage site in place of the native 3 protective antigen furin-recognized cleavage site, wherein the mutant protective antigen is 4 cleaved by a matrix metalloproteinase or a plasminogen activator.
- 1 24. The method of claim 23, wherein the matrix metalloproteinase or a 2 plasminogen activator-recognized cleavage site is selected from the group consisting 3 PCPGRVVGG (SEQ ID NO:4), PGSGRSA (SEQ ID NO:5), PGSGKSA (SEQ ID NO:6), 4 PQRGRSA (SEQ ID NO:7), GPLGMLSQ (SEQ ID NO:2) and GPLGLWAQ (SEQ ID 5 NO:3).